Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 (currently amended). A method of removing streaks from multi-band digital images in an original spectral space, said method comprising the steps of:

a) selecting a plurality of bands of a multi-band image to perform the streak removal operation upon;

b) transforming each of the bands of the multi-band image from an original spectral space of the electromagnetic spectrum to a spectral space of the electromagnetic spectrum advantageous for streak removal for multi-band imagery; and

c) performing a streak removal operation on each band in the advantageous spectral space using information from the other spectral bands~~; and~~

~~d) transforming the streak removed bands from the advantageous spectral space back to the original display space~~.

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2 (original). The method as claimed in claim 1 wherein the spectral space advantageous for streak removal for multi-band imagery is dependent on at least one of the number of the bands of data, the spectral bandpass of each of the imaging bands, and imaging band dependent characteristics of the one or more sensors used to capture the bands.

3 (original). The method as claimed in claim 1 wherein the transformation performed in step b) is a linear combination of the original bands.

4 (currently amended). In a method of removing columnar streaks from a multi-band digital image of the type in which it is assumed that pixels in a predetermined ~~spatial and spectral~~ region near a given pixel spatially and spectrally relative to the electromagnetic spectrum, are strongly related to each other, and employing gain and offset values to compute streak removal

information, the improvement comprising: transforming the pixels of the multi-band image to a spectral space of the electromagnetic spectrum advantageous for streak removal, wherein the transformation is a linear combination of at least two of the original bands, and testing for a strong ~~relation~~ relationship between the pixels in ~~a~~ the predetermined ~~spatial and spectral~~ region ~~near a given pixel~~ and computing streak removal information only if such a strong relationship exists, whereby image content that does not extend the full length of the image in the column direction will not be interpreted as a streak.

5 (currently amended). A method of removing streaking in a multi-band digital image in an original spectral space of the electromagnetic spectrum, said method comprising the steps of:

a) transforming the multi-band image to a spectral space of the electromagnetic spectrum advantageous for streak removal for multi-band imagery, thereby forming a transformed image;

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b) detecting pixel locations in the transformed image where pixel-to-pixel differences caused by streaking can be distinguished from normal variations in the scene data;

c) performing a linear regression to determine an initial estimate of the gain and offset values between each pair of adjacent pixels in a direction perpendicular to the streaking using the pixel values at the detected locations;

d) performing a statistical outlier analysis to remove the pixel values that are not from streaking;

e) performing a linear regression to determine the gain and offset values between each pair of adjacent pixels in a direction perpendicular to the streaking using the pixel values at the detected locations that are not statistical outliers;

f) setting the slope value to unity if it is not statistically different from unity;

g) setting the offset value to zero if it is not statistically different from zero;

h) using the slope and offset values to remove streaking from the corresponding line of image data; and

i) transforming the streak removed transformed image from the advantageous spectral space back to the original ~~display~~ spectral space.

6 (currently amended). A method for removing columnar streaks in a multi-band digital image, comprising the steps of:

a) transforming the multi-band data from an original spectral space of the electromagnetic spectrum to a spectrally advantageous space of the electromagnetic spectrum, thereby forming a transformed digital image;

b) selecting first and second adjacent columns of pixels from the transformed digital image;

c) forming a column of pixel value pairs, representing the pixel values of the adjacent pixels in the two columns;

d) forming columns of local mean values, representing the mean values of pixels in an N-pixel window for each column;

e) forming columns of mean-reduced values, representing the pixel value minus the corresponding local mean values in each column;

a1 f) calculating the correlation between the bands in the local region;

g) forming a column of difference metric values, representing the sum of the squares of the difference between corresponding mean reduced values in an N-pixel window;

h) forming a first reduced column of pixel value pairs by removing from the column of pixel value pairs, those pixel values whose absolute difference between the pairs is greater than a predetermined difference threshold;

i) forming a second reduced column of pixel value pairs by removing from the first reduced column of pixel value pairs, those pixel values whose corresponding difference metric values are greater than a predetermined difference metric threshold;

j) forming first slope, offset, and standard error values by performing a linear regression between the pair of pixel values in the second reduced column of pixel value pairs;

k) forming a column of linear prediction values using the slope and offset values and the first pixel value of the pair of pixel values in the second reduced column of pixel value pairs;

l) forming a column of regression error values, representing the difference between the second pixel value of the pair of pixel values in the second reduced

column of pixel value pairs and the corresponding linear regression prediction value;

m) forming a third reduced column of pixel value pairs by removing from the first reduced column of pixel value pairs, those pixel values whose corresponding regression error values are greater than a predetermined regression error threshold related to the standard error value;

n) forming second slope and offset values by performing a linear regression between the pair of pixel values in the third reduced column of pixel value pairs;

o) setting the second slope value equal to unity if it is determined to not be statistically different from unity;

p) setting the second offset value equal to zero if it is determined to not be statistically different from zero;

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q) adjusting the value of each pixel in the second column of pixels in the digital image by multiplying each value by the second slope value and then subtracting the second offset value;

r) repeating steps a-o for all adjacent columns of pixel values in the image; and

s) transforming the multi-band data back to the original spectral space.

7 (new). The method as claimed in Claim 1 further comprising:

d) transforming the streak removed bands from the advantageous spectral space back to the original spectral space.

8 (new). A method of removing streaking in a digital image having a plurality of electromagnetic spectral bands, said method comprising the steps of:

transforming the image from a first spectral space of the electromagnetic spectrum to a second spectral space of the electromagnetic spectrum, said second spectral space being advantageous for streak removal, thereby forming a transformed image;

detecting pixel locations in the transformed image where pixel-to-pixel differences caused by streaking can be distinguished from normal variations in the scene data;

removing streaking from the image data to provide a streak removed transformed image; and

transforming the streak removed transformed image from the second spectral space back to the first spectral space.

9 (new). The method of Claim 8 wherein said removing streaking further comprises the steps of:

performing a linear regression to determine an initial estimate of the gain and offset values between each pair of adjacent pixels in a direction perpendicular to the streaking using the pixel values at the detected locations;

performing a statistical outlier analysis to remove the pixel values that are not from streaking;

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performing a linear regression to determine the gain and offset values between each pair of adjacent pixels in a direction perpendicular to the streaking using the pixel values at the detected locations that are not statistical outliers;

setting the slope value to unity if it is not statistically different from unity;

setting the offset value to zero if it is not statistically different from zero; and

using the slope and offset values to remove streaking from the corresponding line of image data.

10 (new). A method for removing columnar streaks in a multi-band digital image, comprising the steps of:

transforming the multi-band data from a first spectral space of the electromagnetic spectrum to a spectrally advantageous second spectral space of the electromagnetic spectrum, thereby forming a transformed digital image;

processing all adjacent columns of pixel values in said image to remove streaking; and

transforming the multi-band data back to the first spectral space.

11 (new). The method of Claim 10 wherein said processing further comprises:

selecting first and second adjacent columns of pixels from the transformed digital image;

forming a column of pixel value pairs, representing the pixel values of the adjacent pixels in the two columns;

forming columns of local mean values, representing the mean values of pixels in an N-pixel window for each column;

forming columns of mean-reduced values, representing the pixel value minus the corresponding local mean values in each column;

calculating the correlation between the bands in the local region;

forming a column of difference metric values, representing the sum of the squares of the difference between corresponding mean reduced values in an N-pixel window;

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forming a first reduced column of pixel value pairs by removing from the column of pixel value pairs, those pixel values whose absolute difference between the pairs is greater than a predetermined difference threshold;

forming a second reduced column of pixel value pairs by removing from the first reduced column of pixel value pairs, those pixel values whose corresponding difference metric values are greater than a predetermined difference metric threshold;

forming first slope, offset, and standard error values by performing a linear regression between the pair of pixel values in the second reduced column of pixel value pairs;

forming a column of linear prediction values using the slope and offset values and the first pixel value of the pair of pixel values in the second reduced column of pixel value pairs;

forming a column of regression error values, representing the difference between the second pixel value of the pair of pixel values in the second reduced column of pixel value pairs and the corresponding linear regression prediction value;

forming a third reduced column of pixel value pairs by removing from the first reduced column of pixel value pairs, those pixel values whose

corresponding regression error values are greater than a predetermined regression error threshold related to the standard error value;

forming second slope and offset values by performing a linear regression between the pair of pixel values in the third reduced column of pixel value pairs;

setting the second slope value equal to unity if it is determined to not be statistically different from unity;

setting the second offset value equal to zero if it is determined to not be statistically different from zero;

adjusting the value of each pixel in the second column of pixels in the digital imge by multiplying each value by the second slope value and then subtracting the second offset value; and

repeating steps a-o for all adjacent columns of pixel values in the image.

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